

INFLUENCE OF ETHNICITY, SOCIOECONOMIC STATUS AND GEOGRAPHY ON LOWER EXTREMITY AMPUTATION IN CANADA

Charles de Mestral

PRESENTER DISCLOSURE

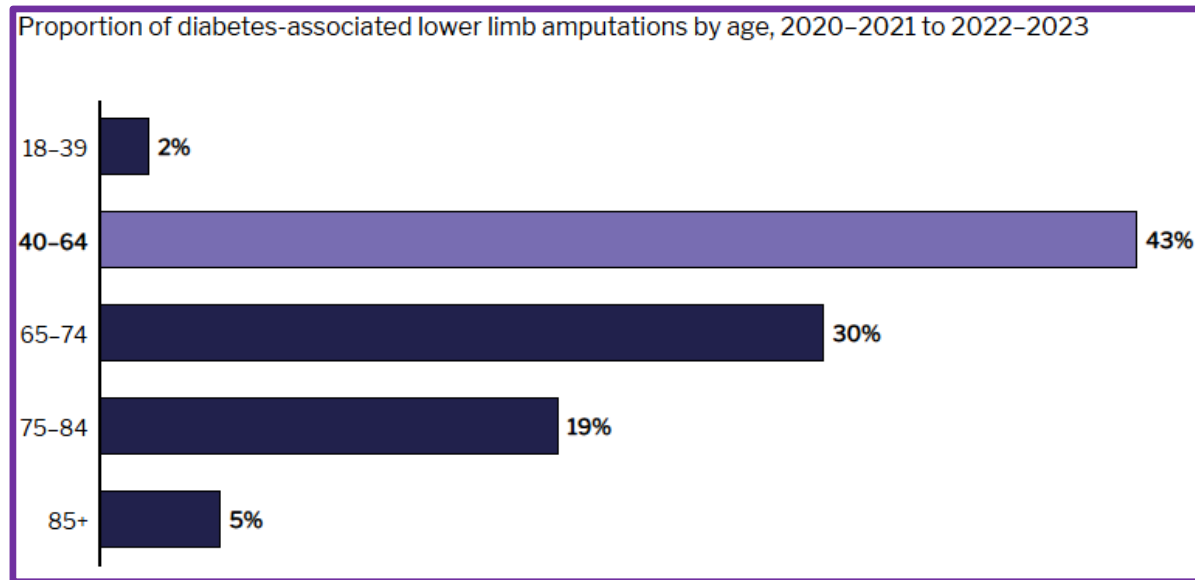
Presenter: Charles de Mestral

- I have no current relationships with commercial entities

2020-2023 CIHI REPORT – DIABETES CARE

- **Amputations** 3,080 major (above-ankle) & 4,640 minor

- **Age**



- **Sex**



Canadian Institute
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2020-2023 CIHI REPORT – DIABETES CARE

- Neighbourhood Income, High school Completion Rate, Deprivation



* Persistent differences in sex and age across SES



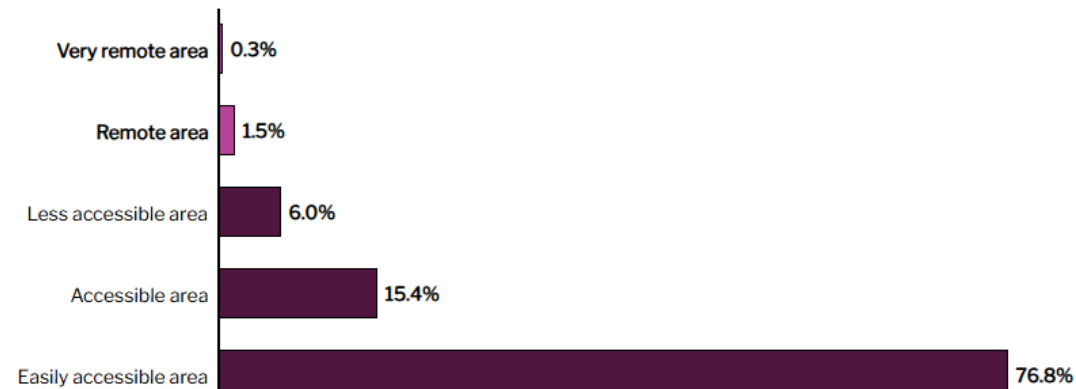
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2020-2023 CIHI REPORT – DIABETES CARE

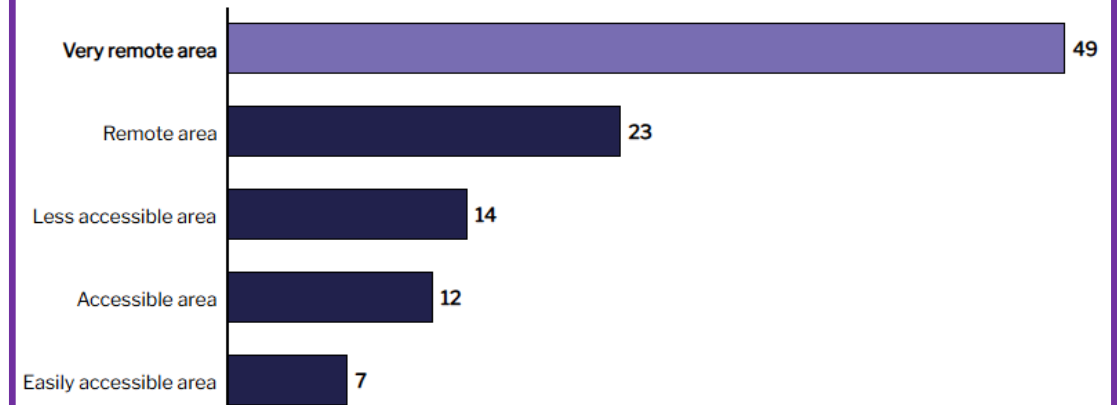
- Remote Area of Residence

About 2% of the population in Canada live in either remote or very remote areas

Percentage of total population in Canada, 2021



Age-standardized rates of diabetes-associated leg amputations per 100,000 people by remoteness index category, 2020–2021 to 2022–2023



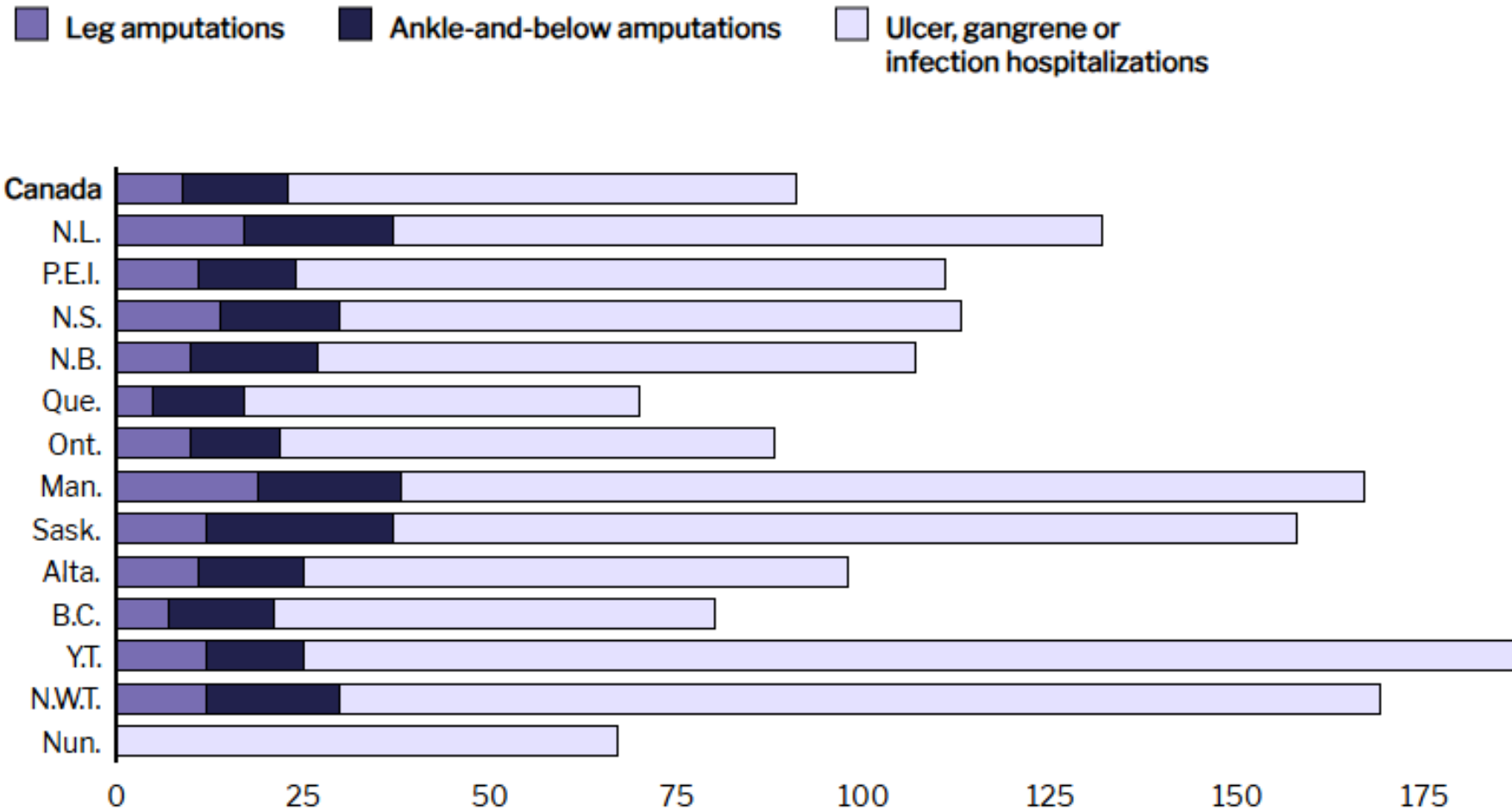
* Fewer providers, longer wait times in rural and remote communities



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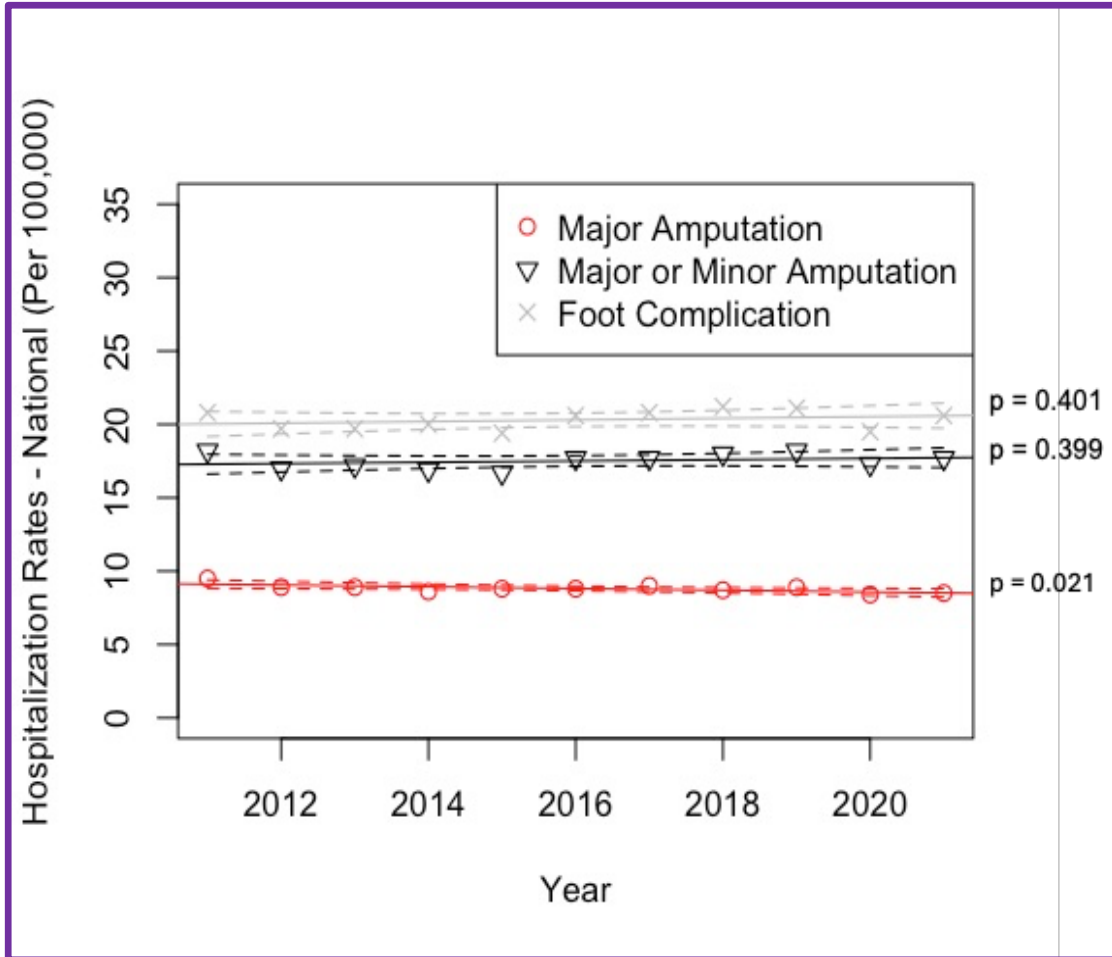
2020-2023 CIHI REPORT – DIABETES CARE

Age-standardized rates of diabetes-associated lower limb complications per 100,000 people by province/territory, 2020–2021 to 2022–2023



ADDITIONAL CIHI DATA ANALYSES – 2011-2021

Kim A et al. *Temporal trends in the rates of foot complications and lower-extremity amputation related to type 1 and 2 diabetes in adults in selected Canadian provinces.* Can J Diabetes 2025 In press



Drop in Major Amputation rate only in:

- Ontario
- Manitoba
- Saskatchewan
- *No Québec data*

No change in

- Minor or Major Amputation
- Hospitalization for Foot Complication (Ulcer, Infection, Gangrene)

ADDITIONAL CIHI DATA ANALYSES – 2011-2021

INCREASE in EVENTS COUNTS

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Major Amputation	1803	1725	1797	1783	1864	1910	1991	1958	2060	1961	2034
Major or Minor Amputation	3460	3336	3465	3507	3548	3841	3931	4060	4204	4065	4271
Foot Ulcer, Infection or Gangrene	3628	3559	3695	3764	3731	4050	4134	4287	4309	4121	4357

Kim A et al. *Temporal trends in the rates of foot complications and lower-extremity amputation related to type 1 and 2 diabetes in adults in selected Canadian provinces*. Can J Diabetes 2025 *In press*

ADDITIONAL CIHI DATA ANALYSES – 2011-2021

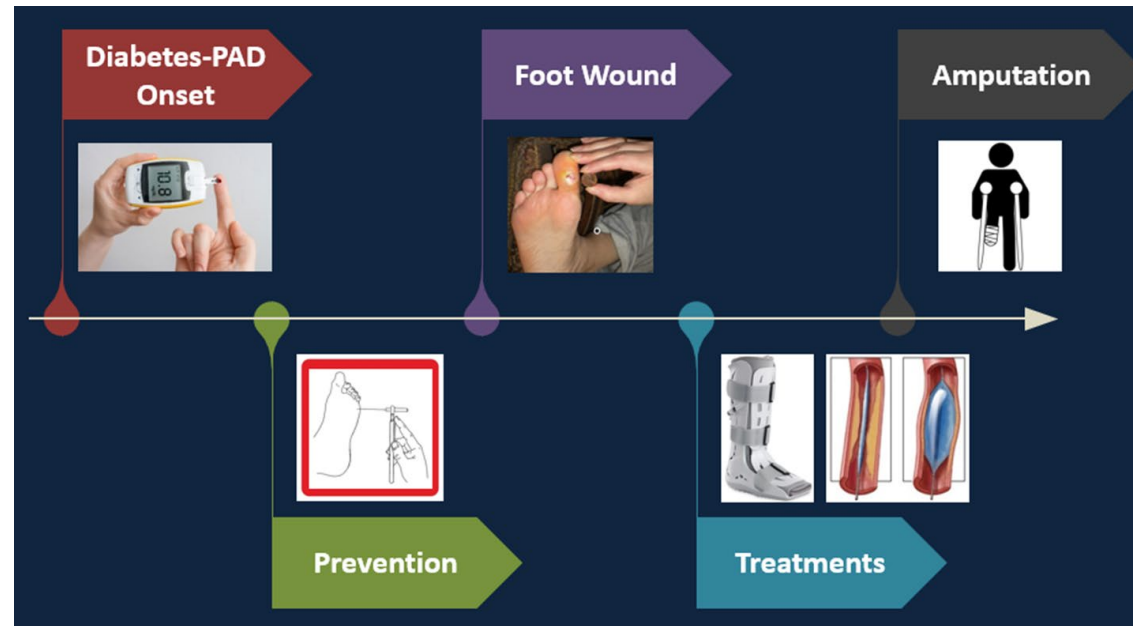
RURALITY CONTRIBUTORY BUT...

Province of residence	Rural residence (%)	Major Amp (No.)	Major Amp rate per 100,000	Major or Minor Amp rate per 100,000	Diabetes-related Foot Complication rate per 100,000
ON	10.00%	4835	8.4	16.1	19
BC	11.30%	1466	6.9	15.5	16.9
AB	16.70%	1318	8.7	18.5	19.6
MN	26.60%	763	15.3	29.6	36.4
SK	33.30%	419	9.8	24.8	31.5
NS	33.30%	501	11.5	22.9	24.8
NB	37.00%	314	8.9	20.8	25.5
PE	38.70%	46	6.9	14.2	25.5
NL	46.50%	319	13.1	24.3	28.7
T	52.40%	23	6.6	10.3	26.2

Kim A et al. *Unpublished*

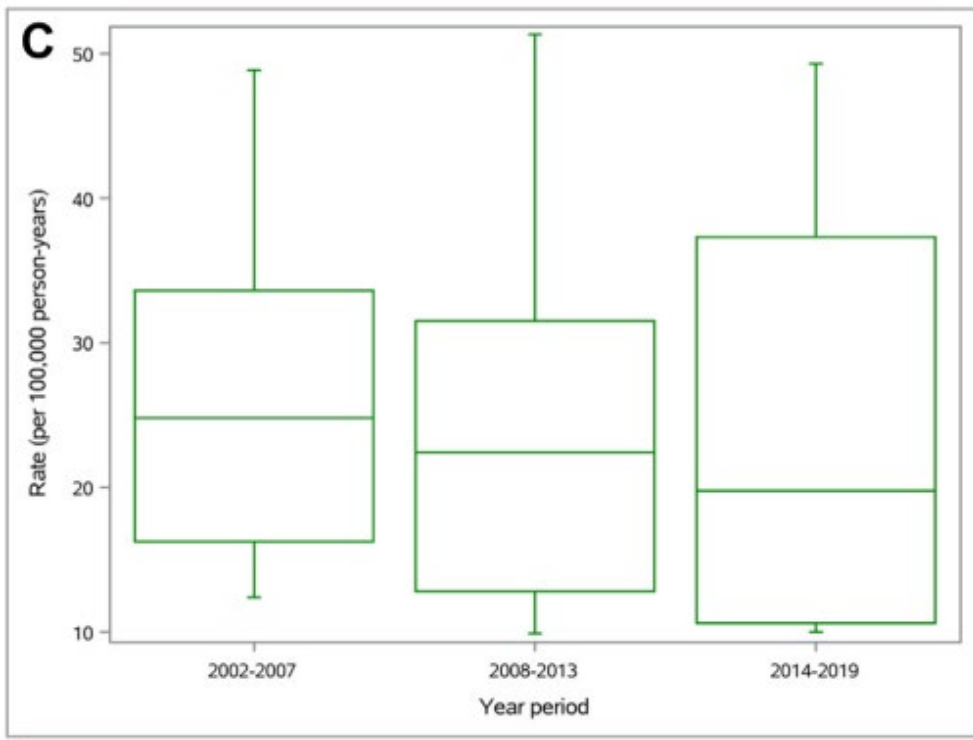
LIMITATIONS OF NATIONAL DATA

- Patients' Race, Ethnicity, Language, Individual-level income – not collected
- Amputation Risk Factors and Risk-Modifying events – variably collected



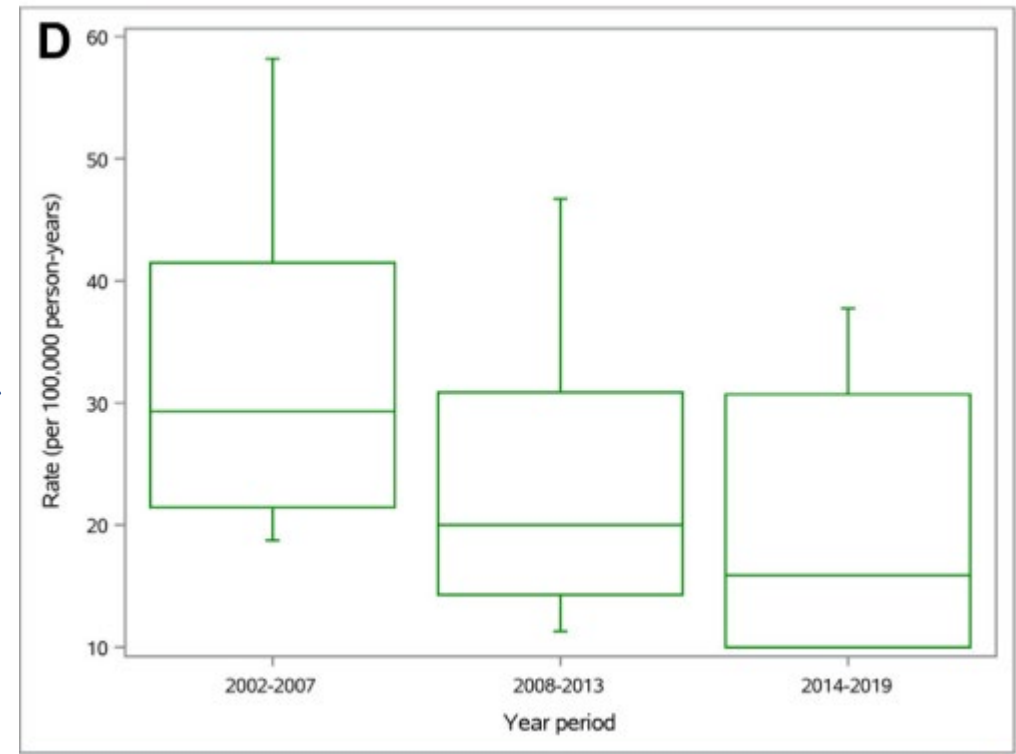
AMPUTATION RELATED TO PAD

Major Amputation Related to PAD in Ontario



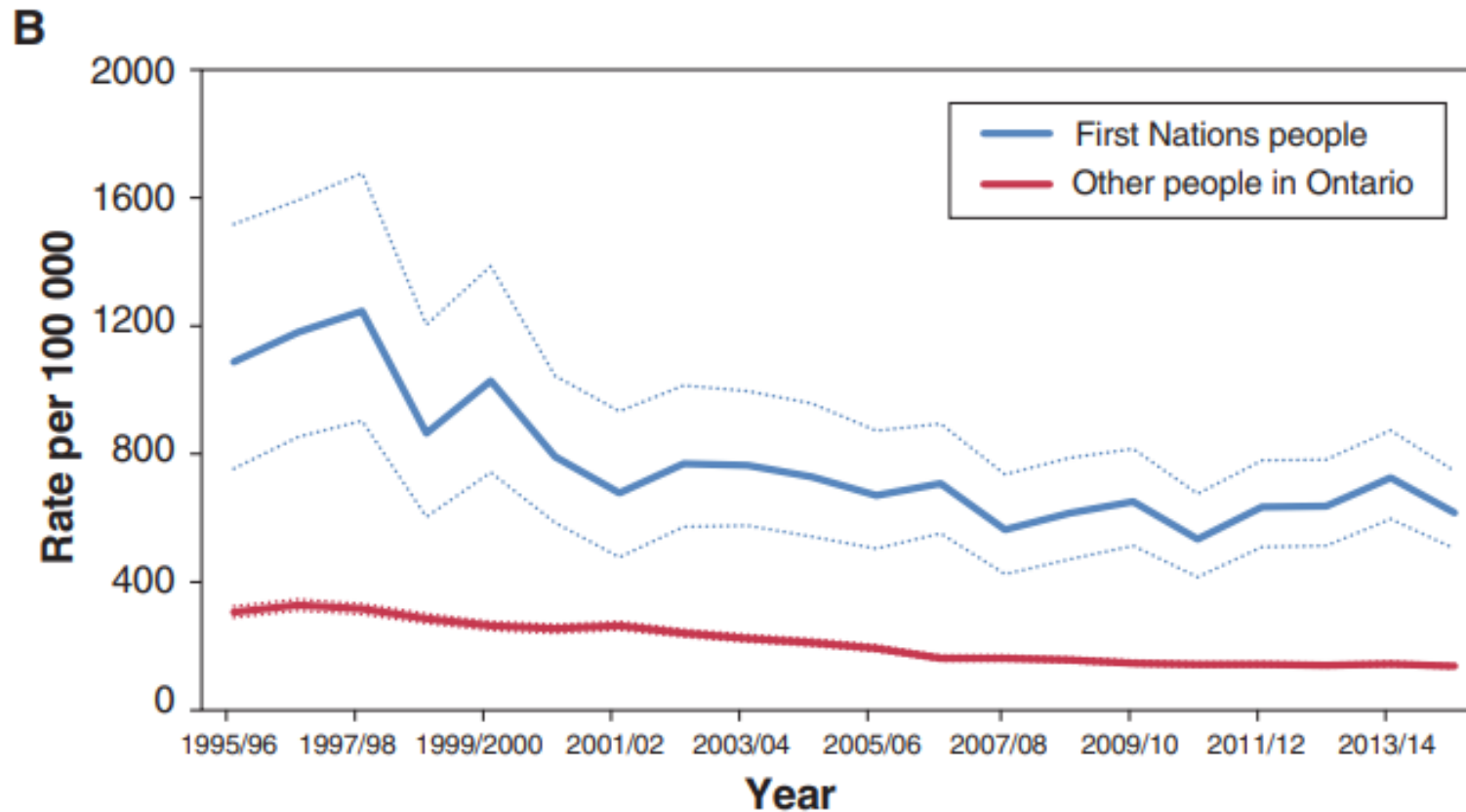
Standardized for:

Age
Sex
Income
Diabetes
CHF, COPD, CKD



RACE & ETHNICITY

Indigenous People at Higher Risk of Amputation



RACE & ETHNICITY

Wees T, ..., Kopriva D. *Identifying barriers to preventive care among First Nations people at risk of lower extremity amputation: a qualitative study*. CMAJ Open 2023 DOI:10.9778/cmajo.20220150

Interconnected Barriers

- Racism & mistrust
- Lack of primary care
- Travel distance
- Financial strain
- Poor patient–provider communication
- Disjointed care/poor coordination

RACE & ETHNICITY

Health

Losing a foot to diabetes is terrifying, and preventable. How doctors are trying to help

Black people are twice as likely as white people to die from diabetes complications in Canada



Amina Zafar, Christine Birak · CBC News ·

Posted: Jun 24, 2024 4:00 AM EDT | Last Updated: June 24, 2024



Duane Lea, who has already lost one foot to a blood clot, fears losing a limb to amputation from diabetes. Doctors say limb loss due to diabetes complications is an epidemic among Black Canadians. (Turgut Yeter/CBC)

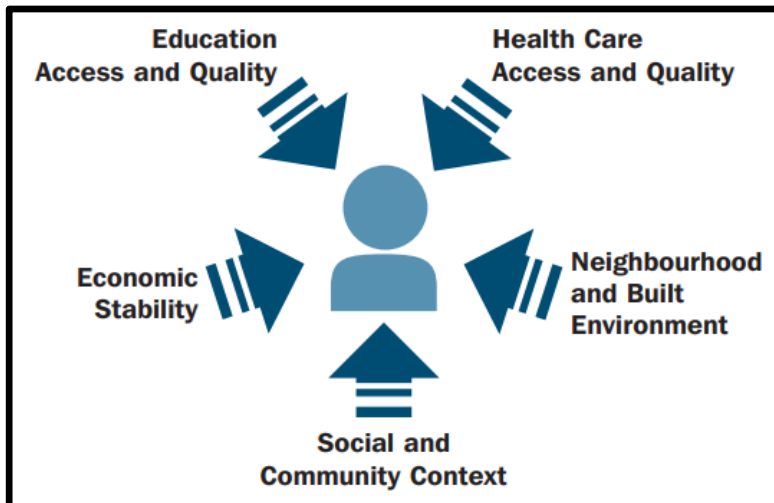
Themes

- Later detection of DM, PAD, foot complications
- Less access to primary care
- Less trust in health care system

RACE & ETHNICITY

Solutions

- Partnership between community and urban providers (Wees T et al CMAJOpen 2023)
- Culture competency training (Wees T et al CMAJOpen 2023)
- Innovative education solutions to support self-management (Wees T et al CMAJOpen 2023)
- Build on relationships of trust with patients and their communities
- Consider full scope of determinants of health



Blanchette V. et al. *Limb Preservation Journal* 2022



SUMMARY

- I. Rates of major amputation are decreasing but the burden of diabetes-related foot complications has not, with ongoing inequity at multiple levels of preventative care.
- II. Data gaps need to be addressed re: risk factors and root causes of limb loss (quantitative and qualitative)
- III. Vascular surgeons are the national leaders in generating new evidence and influencing health policy on amputation prevention in Diabetes and PAD